

Flight Path

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Estimated Sessions: This lesson could be built into a six-week unit by using the extended enrichment ideas.

Grade Levels: Kindergarten – 1st Grade

Purpose: Children will investigate that things move in a directional path.

Geography Standards addressed: Kindergarten

K.2.1 Use whole numbers up to 10 in counting, identifying, sorting, and describing objects and experiences.

K.2.2 Draw pictures and write words to describe objects and experiences

K.3.1 Describe objects in terms of the materials they are made of such as clay, cloth, paper, etc.

K.3.2 Investigate that things move in different ways such as fast, slow, etc.

As the basis for forming cardinal directions, this unit will introduce students to how to design a map that displays information selected by the student, using symbols shown in his/her map key.

This lesson will help students to be able to identify and relate to the world in spatial terms. The student will be able to know and understand the spatial concepts of location, distance, direction, scale, movement and region. The context of this lesson will

reinforce cardinal directions as well as the measurement of movement in a directed path.

OBJECTIVES: Students will...

- construct a paper airplane
- be able to measure an airplane's length of flight.
- be able to construct a map with a key showing their airplane's flight path

BACKGROUND:

Students will have participated in identifying cardinal directions in the classroom prior to this lesson by creating a compass rose on the classroom floor and practicing directional movement by various means. Cardinal directions can be constructed out of masking tape with large laminated letters to show North, South, East, and West. One could have a lesson creating a compass rose together as a class and then reviewing it weekly. This lesson could be just one segment of many utilizing the above mentioned Geographic Standards listed. This lesson is meant to developmentally introduce Kindergarten students or young first graders to mapping skills as well as the beginning elements of measurement using geographic tools.

MATERIALS REQUIRED:

- Two pieces of 8 X 10 White Paper (lighter weight) Not construction paper
- Rulers, two - ten foot piece of rope with a knot tied in the rope every twelve inches.
- Orange spray paint, Large Laminated Letters (N, S, E, W) for Cardinal Directions
- Rocks to hold letters down.

PROCEDURES:

1. Show students how to make a paper airplane out of an 8 X 10 sheet of paper. You could also purchase inexpensive wooden paper airplanes. Collect airplanes for later. (Have them available for the rest of the lesson)
2. Go outside to a grassy area around your school. Have the students gather in a circle around you. In the center of the circle should be rulers, two ropes, a can of

spray paint, rocks, letters, and airplanes. Have a discussion as to how can I make a compass rose out of these materials.

3. After a discussion, tell them it is possible to create a compass rose just like in the classroom using the materials spread out on the ground.
4. Have two students stretch out one of the ten foot pieces of rope. Then take the other ten foot section of rope and form a cross. Then have them lay the ropes down on the ground. Then with students watching take the spray paint and spray along the full length of the ropes. Then choose four students to place the laminated letters where they need to be. Ask, will the letters blow away? Have four more students place the rocks on each one of the laminated letters. Then remove the two ropes for later.
5. Then have students notice the knots tied in each of the ropes. Tell them each section is twelve inches long. Use the ruler to show them the distance between each knot is twelve inches or one foot. Allow them time to measure.
6. Now have the students line up along the bottom edge of you compass rose. Take a paper airplane and throw it towards the North pole.
7. Measure with the rope how far the airplane flew by counting the knots in the rope. For instance (7 knots = 7 feet). Take care to tell the children not to throw the airplane past the total area of the compass rose - this way when you later draw maps with them, they will understand that the airplane is within the immediate area within the realm of the compass rose. Discuss – Did my airplane fly to the North, the East, Etc. Could I stand where my airplane landed and hold it. Do so.
8. Taking turns, each child is to fly their airplane and measure the distance of its path. Discuss and stand where it landed. Try it a couple of times for fun. How many knots or feet did I fly this time. Where did it land on the quadrant of the compass rose?

ASSESSMENT:

Recreate what you did outside by making a map of where your airplane landed.

Draw a map on the chalkboard or an easel. Students will draw a map with you. They can use a ruler to form the cross. Have a partner help them hold the ruler down so it does not move when they draw the lines forming a quadrant or cross. Explain and show the (4) sections of the quadrant. Have them label the correct letters. At the side of the Compass Rose form a Map Key by labeling N (North) S (South) etc. Finally, after their Compass Rose is complete, have them draw on their Compass Rose map where their airplane landed. If they can, have students write the numeral for about how far their airplane flew. For example if my plane flew almost 7 knots then write 7 knots. Let this be optional because some children are not developmentally ready for this transition

Yet. Some will be so encourage, but do not discourage.

ENRICHMENT:

As another outside activity, after creating the Compass Rose outside, pour sand over the quadrants. Place candy on the sand around the quadrants of the Compass Rose. Animals will come eat the candy during the night. The next day see what animal tracks you can find in the North Area, the South, etc. Then draw pictures of what they saw. Use the books Animal Tracks of Indiana, by Tamara Eder to help you identify the tracks. Play a game going on a bear hunt using the compass that is outside. Have all of the students close their eyes, one student places the bear somewhere on the Compass Rose. They choose a student to tell the position where the bear has been placed. Is it to the North or the South?

Other great lesson plans can be found concerning geographic activities under

The web site <http://www.nationalgeographic.com/ngkids/trythis/tryfun4.html>

Also http://www.iupui.edu/~geni/lsort/levi_ugrr_eh.html

Discovery kids.com is another great resource for all sorts of lesson plan ideas that have to do with geography and science. Make a compass using a cork and needle by David Bamundo <http://www.nationalgeographic.com/ngkids/trythis/tryfun4.html>